At a step S12B, the CPU deviates the viewing point E by the calculated scroll quantity at the step S11B.

For example, when the joystick **100** is operated by ΔX in the X-axis direction, a point Ex to which the viewing point E is moved by Sx in the X-axis direction is set as the viewing point position, as shown in FIG. **26**A.

In addition, the direction of line of sight in this case is a vector of ExFx of FIG. **26**A which is parallel to the old direction of line of sight EF. Similarly, when the joystick **100** is operated in the Y-axis direction by ΔY and in the Z-axis direction by ΔZ, respectively, the viewing point E is moved to Ey and Ez as shown in FIG. **26**A.

When the process at the step S12B is ended, the routine returns to the step S5B in which the CPU **4** rewrites the bird's eye view display.

In the fifth embodiment, the position of the viewing point E is deviated according to the operation through the joystick **100** so that the viewing point E can arbitrarily be varied and the road map having an arbitrary range can be displayed on the image screen of the display unit **5**.

In addition, since the direction of line of sight can be translated according to the operation of the joystick **100**, the map area to be displayed on the display image screen of the display unit **5** can be common wherever the viewing point is set. Consequently, the distance relationship on the route of travel and destination can easily be grasped.

Furthermore, in the fifth embodiment, the viewing point E is moved in the direction toward which the joystick **100** is operated so that the bird's eye view is easily coincident with the operator's sense of feeling and the display along with the operator's intention can be carried out.

(Sixth Embodiment)

In a sixth embodiment, the position of the tip F of the line of sight vector EF is varied according to the movement of the joystick **100**.

The structure and flowchart of the sixth embodiment are the same as those in the fifth embodiment except the step S12B of FIG. **25**.

FIG. **26**B shows the movement of the tip F of the line of sight vector EF in the case of the sixth embodiment.

When the movement of the joystick **100** indicates the scroll quantity Sx in the X-axis direction, a point Fx to which the tip F of the line of sight vector is moved in the X-axis direction by Sx is a new tip F of the line of sight vector as shown in FIG. **26**B. Similarly, when the joystick **100** is moved by ΔY and LZ, respectively, in the Y direction and Z direction, the tip F of the line of sight vector is moved to Fy and Fz, respectively.

In the sixth embodiment, the line of sight is varied according to the operation of the joystick **100** with the viewing point position fixed. Thus, it is convenient for the operator (vehicular occupant) to recognize or check to see, for example, the road map surrounding to the present position of the vehicle through the display unit **5**.

In addition, since the operation direction of the joystick **100** is coincident with the movement direction of the tip of the direction of line of sight, it is coincident with the operator's sense of feeling and display in accordance with the operator's intention can be carried out.

(Seventh Embodiment)

In a seventh preferred embodiment of the vehicular navigating apparatus, the viewing point is rotated in accordance with the operation of the joystick **100** and a mode switching means is provided. When the mode is switched by means of the mode switching means, the tip F of the line of sight vector is moved (translated) or rotated according to the operation of the joystick **100**.

The difference from the fifth and sixth preferred embodiments is only the step S12B of FIG. **25**.

FIGS. **27**A, **27**B, **27**C, and **27**D show the operation example of the joystick and coordinate system of the viewing point and line of sight vector for explaining the operation in the case of the seventh embodiment.

Suppose that, in FIGS. **27**A through **27**D, the X-axis component of the line of sight vector EF is zero and the Y-axis component of the line of sight vector EF is R.

In the seventh embodiment, the viewing point E is rotated along an outer periphery (dotted portion of FIG. **27**A) of a circle C having a radius R which is parallel to the place XY, as shown, in FIG. **27**A.

Specifically, when the joystick **100** is operated by ΔX in the positive direction of X axis, the viewing point E is rotated along the circle C in a negative direction of X axis by $k2 \cdot \Delta X$ ($k2>$). Then, suppose that a line segment connecting the viewing point E' after the rotation and a point F is a new line of sight vector E'Y.

Since, in the seventh embodiment, the viewing point E is rotated in the direction opposite to the direction toward which the joystick **100** is operated, the line of sight direction is always coincident with the direction of the operation of the joystick **100**.

On the other hand, when the joystick **100** is operated in the Z-axis direction, the viewing point E is moved on a prolongation of the line of sight vector EF.

For example, when the joystick **100** is operated in a negative direction of the Z axis, i.e., when the joystick **100** is pushed toward the display panel **12**, the viewing point E is moved to a position near the point F, for example, to a point A of FIG. **27**B. Hence, as the pushing force on the joystick **100** becomes stronger, the road map becomes extended. On the contrary, when the joystick **100** is pulled in the positive direction of the Z axis, the viewing point E is moved away from the point F. Hence, as the pulling force on the joystick **100** becomes stronger, the road map becomes reduced.

In addition, when the joystick **100** is pulled to some degree in the positive direction of Z axis, the viewing point E is moved in the positive direction of the Z axis, i.e., to a point B shown in FIG. **27**B. Consequently, the display unit **5** displays the road map which can be viewed from the upper sky straight above the road map, i.e, the normal top view of the road map.

FIG. **27**C shows a situation wherein the range of the road map displayed on the display image screen of the display unit **5** is varied according to the operation of the joystick **100** in the direction of the Z axis.

When the viewing point is placed at points A, E, and B shown in FIG. **27**B, respectively, the respective ranges of the road map to be displayed are denoted by A1, B1, and E1 shown in FIG. **27**C.

The reduction scale percentage of the bird' eye view is arbitrarily varied according to the operation of the joystick **100** in the direction of Z axis. In a case where the joystick **100** is pulled to some degree away from the display panel, the display is such that the road map is viewed from the direction of the upper sky near the straight above the road map, i.e., approximately the top view.

On the other hand, after the joystick **100** is operated in the direction of either −Y or +Y, it is operated in the direction of